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14. ABSTRACT It is no mystery that modern combat forces require ammo, food, water, fuel and supplies to function on the battlefield, so then, why is logistics so hard? Why, after learning many lessons from Desert Shield/Desert Storm in 1991, the U.S. Military during Operation Iraqi Freedom (OIF) in 2003 still had many logistics challenges? During OIF, CENTCOM implemented the Logistics Common Operating Picture (LCOP) concept, which provided enough logistics situational awareness to reduce the "Iron Mountains" of Desert Storm to "hills" in OIF. This paper argues that the relative success of logistics during OIF indicates that LCOP is a move in the right direction, and it argues that LCOP, when synchronized with the other operating functions can be effective in helping the commander balance the factors of time, space and force. Furthermore, it concludes that LCOP will become even more essential under transformation as the U.S. military seeks to leverage technology to accelerate the pace of war with smaller lighter forces operating in a larger non-contiguous battlespace. This paper initiates its argument with a working definition of LCOP and explaining why it is important to the commander. It then analyzes relevant vignettes to show how LCOP helps the commander balance the factors of time, space and force and how it helps him synchronize the operating functions.					
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**NAVAL WAR COLLEGE  
Newport, RI**

**THE OPERATIONAL NECESSITY  
FOR  
LOGISTICS COMMON OPERATING PICTURE  
Now and In the Future**

**By**

**Michael A. Spencer  
LTC, U.S. Army**

**A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.**

**Signature: \_\_\_\_\_**

**16 May 2003**

## Abstract

It is no mystery that modern combat forces require ammo, food, water, fuel and supplies to function on the battlefield, so then, why is logistics so hard? Why, after learning many lessons from Desert Shield/Desert Storm in 1991, the U.S. Military during Operation Iraqi Freedom (OIF) in 2003 still had many logistics challenges?<sup>1</sup> During OIF, CENTCOM implemented the Logistics Common Operating Picture (LCOP) concept, which provided enough logistics situational awareness to reduce the “Iron Mountains” of Desert Storm to “hills” in OIF.<sup>2</sup> This paper argues that the relative success of logistics during OIF indicates that LCOP is a move in the right direction, and it argues that LCOP, when synchronized with the other operating functions can be effective in helping the commander balance the factors of time, space and force. Furthermore, it concludes that LCOP will become even more essential under transformation as the U.S. military seeks to leverage technology to accelerate the pace of war with smaller lighter forces operating in a larger non-contiguous battlespace. This paper initiates its argument with a working definition of LCOP and explaining why it is important to the commander. It then analyzes relevant vignettes to show how LCOP helps the commander balance the factors of time, space and force and how it helps him synchronize the operating functions.

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<sup>1</sup> General Accounting Office, Defense Logistics: Preliminary Observations of the Effectiveness of Logistics During Operation Iraqi Freedom, Report to Congress, (Washington, DC: 2003), 3.

<sup>2</sup> Anthony H. Cordesman and Arleigh A. Burke, Instant Lessons Learned from Operation Iraqi Freedom: Main Report, Eighth Working Draft, (Washington, DC: CSIS, 14 May 2003), 140.

## **Preface**

As the Deputy Director of Simulations, U.S. Army Europe (June 1999- June 2003), I was directly involved in helping Combine Forces Land Component Command (CFLCC) develop and implement the Logistics Common Operating Picture (LCOP) concept, so I have first hand knowledge of how it came together and its capabilities. This paper is not a historical documentation of that effort, nor does it attempt to recount Operation Iraqi Freedom in total, but rather it attempts to place LCOP in the general context of operational art and uses Desert Storm and OIF backdrops to compare and contrast how far the logistics community has come.

I undertook this topic for two reasons. First, most of the current DoD transformation efforts are dominated by advanced technology and hardware solutions, and not enough emphasis on the art of war. No matter what the technology solution, the principles of operational art still apply.

My second reason for writing on this topic was to honor those who answered the call and made LCOP happen, literally overnight. One of those special people was Mr. Michael Pouliot, who as Vice President of Tapestry Solutions, was killed while in Kuwait to install Joint Deployment Logistics Model (JDLM) systems at CFLCC headquarters. JDLM served as the graphical display, asset tracking and COA/predictive analysis tool for LCOP. The Nation may never know the debt of gratitude it owes to Mike and his family, for the sacrifice he made, but LCOP would not been possible without his efforts. LCOP came together under a cooperative effort between CFLCC, CASCOM, V Corps, 21<sup>st</sup> Support Command and 7<sup>th</sup> Army Training Command between Dec 2002 and Mar 2003, and continues to be enhanced as it operates in support of OIF today.

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# 1. Introduction.

*“Everything in war is simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction that is inconceivable unless one has experienced war.”<sup>3</sup> Clausewitz*

It is no mystery that modern combat forces require ammo, food, water, fuel and equipment to function on the battlefield, so then, why is logistics so hard? Why, after learning many lessons from Desert Shield/Desert Storm in 1991, the U.S. Military during Operation Iraqi Freedom (OIF) in 2003 still had many logistics challenges?<sup>4</sup> The above quote from Clausewitz sheds much light on this issue, but it does not begin to explain the complex nature of modern operational level logistics.

The U.S. military mobilizes and deploys faster and farther than any force in history. When it arrives, it delivers precise, lethal and decisive firepower at the time and place of the commander’s choosing and then, the reality of logistics spoils what was otherwise a flawless operation. Why does this happen time and time again and what can be done to prevent it? In order to provide GEN Norman Schwarzkopf, Commander U.S. Central Command (CENTCOM) with maximum flexibility during Desert Storm, LTG William G. (Gus) Pagonis, Commander, 22<sup>nd</sup> Support Command, stockpiled “mountains” of war material only to find that the sheer mass itself was a major limiting factor.<sup>5</sup> During OIF, CENTCOM implemented the Logistics Common Operating Picture (LCOP) concept, which provided enough logistics situational awareness to reduce the “mountains” to “hills”<sup>6</sup>; however, GEN

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<sup>3</sup> Michael Howard and Peter Parret, Carl Von Clausewitz On War, (Princeton, NJ: Princeton University Press, 1976), 119.

<sup>4</sup> GAO, Preliminary OIF Report, 2.

<sup>5</sup> William G. Pagonis with Jeffery L. Cruikshank, Moving Mountains, (Boston, MA: Harvard Business School Press, 1992), 138.

<sup>6</sup> Office of Force Transformation. Sense and Response Logistics Capability and Operational Iraqi Freedom, (Washington DC: 8 April 2004), 24.

Tommy Franks, CENTCOM Commander during OIF, still found it challenging to balance the operational factors of time, space and force. Nonetheless, the relative success of logistics during OIF indicates a move in the right direction, and it shows that LCOP, when synchronized with the other operating functions can be effective in helping the commander balance the factors of time, space and force. Furthermore, it concludes that LCOP will become even more essential under transformation as the U.S. military seeks to leverage technology to accelerate the pace of war with smaller lighter forces operating in a larger non-contiguous battlespace.

## 2. What is LCOP?

LCOP or logistics situational awareness is not yet specifically addressed in Joint or Service doctrinal publications; however, there are many references to common operating picture (COP). During OIF, the Combine Forces Land Component Command (CFLCC) defined LCOP as: “. . . *a graphical decision aid which allows the CFLCC Commander and Staff to rapidly assess the logistical readiness of the command and identify problems. The LCOP must ultimately present **a current picture and a predicted picture**, focusing on Force-Tracking, Force-Closure, Readiness, and Distribution Management, in order to allow timely decision-making.*”<sup>7</sup> Joint Publication (JP) 3-0 defines COP as: “*A single identical display of relevant information shared by more than one command. A common operating picture facilitates collaborative planning and assists all echelons to achieve situational awareness.*”<sup>8</sup> Chairman, Joint Chiefs of Staff Instruction (CJCSI) 3151.01A goes into great detail in describing how the Global Command and Control System (GCCS) COP will be standardized

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<sup>7</sup> Combined Arms Support Command. Logistics Common Operating Picture Briefing. (Fort Lee, VA: 18 Feb 2003), 4.

<sup>8</sup> Joint Chiefs of Staff, Doctrine for Joint Operations, Joint Pub 3-0, (Washington, DC: Sep 2001), GL-7.

and maintained.<sup>9</sup> The concept of COP as defined in JP3-0 and CJCSI 3252.01A can be applied to all of the operational functions, including logistics, but the LCOP concept attempts to go much farther than sharing “*identical displays of relevant information*” and attempts to move logistics situational awareness closer to an absolute.<sup>10</sup>

To achieve absolute logistics situational awareness, the operational level commander must gain and maintain 100% complete and accurate understanding about the past, present, and future effects of time, space and force on friendly and enemy operations. Absolute situational awareness is clearly not feasible for any operational function and certainly not logistics. However, the theory behind LCOP is that gaining and maintaining superior logistics situational awareness allows the commander to make time, space and force related decisions faster than the enemy can react. For example, during OIF, logistics situational awareness allowed the coalition to exploit information superiority over the Iraqis.<sup>11</sup> A proper LCOP implementation recognizes that logistics situational awareness is more than a common electronic overlay and it recognizes that the commander must not only be aware of the current situation, but he must be in a position to do something about it.

### **3. Why is LCOP important to the Commander?**

*“It continually took the Iraqi forces a long time--somewhere on the order of 24 hours to--react to anything we did. By the time the enemy realized what we were doing, got the word out to his commanders and they actually did something as a result, we had already moved on to do something quite different. For the commander, that’s a pretty good thing—fighting an enemy that can’t react to you.”<sup>12</sup> LTG Wallace, V Corps Commander*

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<sup>9</sup>Joint Chiefs of Staff, Managing, Integrating and Using Joint Deployment Information Systems. CJCSI 3020.01 (Washington, DC: 12 June 2000), 4.

<sup>10</sup>The idea of absolute situational awareness comes from Clausewitz’s idea of absolute or pure war.

<sup>11</sup>Andrew H. Krepinevich. Operation Iraqi Freedom: A First Blush Assessment. (Washington, DC: Center for Strategic and Budgetary Assessments, 2003), 15.

<sup>12</sup> Ibid.



In order to avoid having logistics become the “*final arbiter for the conduct of war*”<sup>13</sup>, and to ensure that he was in the right place at the right time to deliver decisive combat power, LTG Wallace had to maintain logistics situational awareness. LCOP gave him greater confidence that his plans and orders were logistically feasible and sustainable.

To achieve this level of confidence, his LCOP had to be concerned with the past, present and future impacts of time, space and force on friendly and enemy operations. Logistics operations do not start and stop with major combat operations, but rather they are apart of a continuous process that span between wars and are “calculated to create possibilities for future utilization.”<sup>14</sup> Logistics activities today determine the commander’s options for tomorrow, while simultaneously; ongoing combat operations create new time, space and force issues and generate changing logistics requirements. The commander must also continually integrate analysis of past operations into his LCOP in order to develop a predictive pattern to aid in anticipating future requirements and to maintain flexibility.

Flexibility dictates that the commander’s LCOP must account for the impact of time, space and force on both combat and combat service support (CSS) units. As an operation progresses, the factors of time, space and force will continually change for both combat and CSS units; however, the CSS commander must remain responsive, flexible, and anticipate requirements for both his units and that of supported units as well. In fact, JP 4-0 lists seven principles of logistics: responsiveness, simplicity, economy, sustainability, flexibility, survivability and attainability,<sup>15</sup> but to adhere to these principles, the commander must have

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<sup>13</sup> Howard and Parret, 135.

<sup>14</sup> William G. Pagonis and Michael D. Krause, Operational Logistics and the Gulf War, (Arlington, VA: Association of the U.S. Army, Institute of Land Warfare, 1992), 4.

<sup>15</sup> Joint Chiefs of Staff, Doctrine for Logistics Support of Joint Operations, Joint Pub 4-0, (Washington, DC: 6 April 2000), II-1.

the ability to simultaneously track the current battle situation, and continually analyze past operations to assess time, space and force requirements for future operations.

During OIF, CENTCOM was simultaneously engaged in mobilization, deployment, reception, staging, onward movement and integration (RSOI), sustaining ongoing combat operations, and planning for future operations. Since all of these activities were linked to the same logistics system, they all had to be integrated into a single logistics COP. In contrast, LTG Pagonis had little situational awareness during Desert Storm,<sup>16</sup> so he had to resort to worse case planning, which resulted in mountains of materials being deployed to Southwest Asia.<sup>17</sup> This monumental effort required a lot of time, which slowed the rate at which operational decisions could be made and acted upon.<sup>18</sup> The “Iron Mountains” also required a great deal of space, which had to be defended and it required large formations of CSS units to establish, maintain and distribute large supply stockpiles.<sup>19</sup> Clearly, if LTG Pagonis had a better understanding of the logistics situation and the ability to conduct accurate predictive analysis, he could have significantly reduced the size of the “Iron Mountains.”

*“Since all information and assumptions are open to doubt, and with chance at work everywhere, the commander continually finds that things are not as he expected.”*

*“During an operation decisions usually have to be made at once: there may be no time to review the situation or even think it through. The latest reports do not arrive all at once: they merely trickle in.”<sup>20</sup>, Clausewitz*

## **4. Balancing Time, Space and Force**

Since time, space and force are interrelated, it is almost impossible to talk about one without addressing the other. As demonstrated during OIF and as Clausewitz describes

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<sup>16</sup> GAO, Preliminary OIF Report, 4.

<sup>17</sup> Department of Defense, Conduct of the Gulf War, Final Report to Congress, (Washington, DC: U.S. Government Printing Office, 1992), 394.

<sup>18</sup> Pagonis and Cruikshank, 136-140.

<sup>19</sup> Ibid, 106-107

<sup>20</sup> Howard and Parret, 102.

above, this interrelationship can sometimes be quite obscure. For example, had the march to Baghdad during OIF developed more slowly, the CSS forces might have had a better chance of keeping up, but in that case, ammunition and fuel consumption rates may have been higher. Looking at it another way, had the commander recognized the pace of the battle earlier he might have anticipated the increased requirement for ammo and fuel.

Taking all of these possibilities into account, LCOP helped the commander balance the factor of time with space and force by providing timely and relevant answers to the following and other pertinent questions:

- When does the commander need to make critical logistics decisions in order to maintain flexible use of available forces and space?
- After making a decision about force and space, how long will it take for that decision to be realized? (Mobilization, preparation for attack, deployment, etc.)
- How long can a given size force operate in a given area without resupply?

The first bullet indicates that LCOP alerted the commander of impending critical decisions in enough time that he could reasonably react. For example, it would have done GEN Franks little good to have been informed that his attack would culminate due to a lack of fuel and ammo after he had already committed 3ID in the attack on Baghdad. The fact is that he was well aware of 3ID's logistics status and because of LCOP he was able to continue the attack until 3ID was reduced to less than one day of supplies.<sup>21</sup> The second bullet indicates that LCOP helped the commander visualize the challenges related to his decisions. For example, CENTCOM had enough logistical situational awareness to decide to kick off the ground war on 19 Mar 2003, despite the fact that 4ID and 3d ACR had not arrived in theater.<sup>22</sup> The last

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<sup>21</sup> Cordesman and Burke, 119.

<sup>22</sup> Ibid, 43.

bullet is an example of how LCOP helped assess how long the operation could have lasted, by determining how long operations could reasonably be sustained. In Desert Storm, LTG Pagonis had little situational awareness of future operations, so he maintained 60 days of supply, while in OIF only 7 days of supply were maintained in theater.<sup>23</sup>

*“Personally, the period during the dust storm was the low point of the entire campaign for me. That was definitely the hardest part and the low point of the war. You have to remember that the 3<sup>rd</sup> Infantry Division crossed the line of departure to open the war with about five days of supplies in terms of water, food and ammunition. Then the dust storm hit on the fifth day of the fight, and lasted for most of three days. During the storm, our convoys took three to four days and were carrying two days of resupply. So the math didn’t add up at that point, which concerned me. Not that we couldn’t hold on to the ground that we had gained, but we couldn’t advance a lot farther in our plans until we had solved the logistics issue.”*  
LTG William S. Wallace, Commanding General, V Corps.<sup>24</sup>

Further analysis of the march to Baghdad in terms of the factor of space highlights relative success of LCOP during OIF. For example, LCOP had to consider the physical state of the infrastructure on logistics support. When the battlespace changed during the course of the attack due to weather and obstacles, the commander was able to quickly assess the impact on his timeline, forces, and operational functions. Furthermore, the enemy influenced the space by retreating into towns and occupying sensitive sites, such as schools, and hospitals.

LCOP helped the commander balance the factor of space with force and time by providing pertinent answers to the following and other relevant questions:

- How do physical attributes of the battlespace affect the logistics support to the mission in terms of time and force?
- As changes to the battlespace affect logistics support, what options does the commander have to adjust his forces and/or timeline?

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<sup>23</sup> USJFCOM, Joint Lessons Learned, Operation Iraqi Freedom Major Combat Operations (Coordinating Draft), (Norfolk, VA: 1 Mar 2004), 90.

<sup>24</sup> Cordesman and Burke, 119.

- What are my logistics battlespace requirements for future operations?

The first bullet indicates the need for LCOP to continually sense the factor of space, and anticipate affects on time and forces. For example, the mountainous regions of Eastern Iraq required significantly different forces and resupply times than what was required in the deserts of Western Iraq. The LCOP had to also anticipate how different types of terrain would affect personnel and equipment. For, example, LTG Wallace said he was surprised at the impact of dust and sand during OIF.<sup>25</sup> The second bullet recognizes that LCOP had to account for the dynamic nature of space and how it suddenly changed over time. For example, the powerful sandstorms during OIF caused an immediate effect on the forces and their rate of advance. LCOP recognized that CSS and combat units were equipped differently, so weather and climate affected each differently. Finally, the last bullet demonstrates the need for LCOP to project space requirements for logistics into the future. As the attack developed, LCOP informed the commander of the changing space requirements and how space could affect the time for resupply and how it affected supported forces.

Of the three operational factors, the factor of force is the most complex and dynamic; therefore, it posed the greatest challenge to developing and maintaining logistics situational awareness (LCOP). For the most part, physical attributes of time, space and force can be measured or computed, but the force factor also encompasses the “human elements”, such as doctrine, morale, leadership, discipline and training, which are almost impossible to quantify.<sup>26</sup> For example, a unit with an aggressive leader might consume more supplies and move faster than a unit that has a less aggressive leader. A well trained and disciplined unit might be more judicious and efficient with ammo and fuel. Whereas a poorly trained and

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<sup>25</sup> Cordesman and Burke, 119.

<sup>26</sup> Milan Vego, Operational Warfare, (Newport, RI: US Naval War College, 2000), 59-60.

undisciplined unit might be wasteful and disorganized. Additionally, combined arms, joint and multinational operations are variables that can affect logistics in unexpected ways. Finally, interaction with an intelligent, thinking and adaptive enemy adds even more uncertainty to the situation. Clausewitz states, “*Moral values cannot be ignored in war*”<sup>27</sup>, and they are almost impossible to predict or quantify in a way that is useful to developing situational awareness.

Nonetheless, this was not a reason to give up on developing and maintaining a LCOP. In fact, it made having LCOP even more urgent. The “human intercourse”<sup>28</sup> in war will always bring about unexpected results, but because LCOP helped the commander minimize risk from predictable sources, and helped him make intelligent guesses about unquantifiable influences, he was in a better position to exploit success when the opportunity presented itself. Considering both intangible and physical attributes, LCOP helped the commander balance the factor of force with space and time by providing accurate and reliable answers to the following and other questions:

- What size and type of force can I deploy into the battlespace and when can it get there to start operations?
- Do I have adequate logistics capability at the right place and time to support forces involved in ongoing and future combat operations, if not, when and where will I have it?
- What time and space limitations does logistics place upon my options for employing forces to support ongoing, future, branch and sequel operations?

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<sup>27</sup> Howard and Parret, 137.

<sup>28</sup> Ibid, 149.

The first question was answered primarily through the application of doctrine, science and mathematics, but sometimes it was complicated by changing force, time and space issues. For example, a deployment might have only taken a week for a combat ready unit in the United States, but a month for a similar unit that was closer to the area of interest, but was less combat ready and relied upon foreign ports. The second question is far more complicated. First of all, how much was enough and second, where was the right place and what was the right time? To answer these questions, the logisticians had to have an ability to predict supply consumptions to determine what, where and when supplies would be needed. Furthermore, they had to also synchronize logistics with the other operational functions to determine the best location and time to provide support. The last question is as complicated as the first two combined. To answer this question, the logisticians had to consider the logistics impact of ongoing and planned operations and then predict how the outcomes of either or both would impact potential branches and sequels. It was virtually impossible to answer this question with confidence, but getting it wrong could have resulted in disastrous consequences.

It is apparent from after action reviews and GAO reports, that the LCOP concept did not address all of lessons from Desert Storm. However, there is little doubt that it was a definite improvement in terms of the agility, flexibility and speed at which it allowed commanders to make and execute operational level decisions. Furthermore, LCOP was not fully implemented across the battlefield and each service had its own technical and conceptual implementation. Nonetheless, it was a move in the right direction.

*Forget logistics and you lose.*<sup>29</sup> Gen Freddie Franks, 1991

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<sup>29</sup> Pagonis and Krause, 14.

## 5. Synchronizing LCOP with Operational Functions.

Whether he uses 3x5 cards as LTG Pagonis did during Desert Storm,<sup>30</sup> or a satellite enabled in-transit visibility system that was used during OIF,<sup>31</sup> the commander seeks to synchronize the battlefield operating functions, so that he can achieve and maintain the proper balance between time, space and force. Specifically, he wants to leverage LCOP to synchronize logistics with maneuver, intelligence, C2, fires, and protection to effectively deliver combat power at the right place and at the right time. LCOP only paints one part of the overall picture, but logistics is the function that “underwrites”<sup>32</sup> all other activities, so to understand the logistics picture is to understand what is physically possible. Consequently, LCOP should play a major role in helping the commander synchronize the other functions.

For example, in order to synchronize the C2 function with the other functions, the commander must allocate adequate CSS capability to enable the other functions to operate in accordance with the C2 structure. Unity of effort can only be achieved if all subordinate organizations have the logistics capability to follow the commander’s orders. It would be detrimental to assign or attach additional forces to a subordinate commander and then not give him the logistics capability to sustain those forces in accordance with the mission and scheme of maneuver. This sounds very obvious and simple, but it is not uncommon for units to be given forces that they can not sustain, and without a determined effort to maintain logistics situational awareness, it would happen even more often.

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<sup>30</sup> Pagonis and Cruikshank, 106-107.

<sup>31</sup> USJFCOM, OIF Lessons, 95.

<sup>32</sup> Pagonis and Krause, 4



For example, consider a *fictitious*<sup>33</sup> Combined Forces Land Component Command (CFLCC) operation that called for switching the main effort from V Corps to the I Marine Expeditionary Force (MEF) following a successful V Corps attack on the Medina Division near Karbala. As the main effort, I MEF received an Army aviation battalion and two Army field artillery battalions under an attached command relationship. However, during the attack, the enemy fought harder than expected, so both V Corps and I MEF used more ammo and fuel than they anticipated and their organic supplies were dangerously low. Furthermore, the attack was so fast and pushed so deep into enemy territory that resupply from the corps support command (COSCOM) to I MEF was not be possible for at least 24-48 hours. To further complicate matters, massive sandstorms severely restricted resupply operations.

At this point, the CFLCC commander must decide whether to continue the attack and risk exceeding his culminating point or request an operational pause to allow time for his logistics forces to catch up. However, stopping the attack could give the enemy time to regroup and bring in reinforcements. Either choice could result in unnecessary loss of life, so the CFLCC commander should base his decision on the best information possible; however, if he had not been maintaining logistics situational awareness (LCOP) and synchronizing the operational functions, he would, in effect, be guessing. The fact that he got into this situation is an indication that the functions of maneuver, intelligence and logistics got out of synch, and caused the factors of time, space and force to go out of balance. To bring the attack back into balance, the CFLCC commander must now resynchronize the operational functions by trading space for time (stopping or slowing the attack) and using the time to gather better intelligence on the enemy and to move logistics and combat forces into the proper position to

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<sup>33</sup> This is meant to depict reasonable situation and not to draw a direct similarity to OIF operations. I chose this approach because I did not want to appear to criticize the OIF operation. Furthermore, this vignette is designed

continue the attack. Even with LCOP and the best effort to synchronize the operational functions, the commander may not have prevented this situation, but at least he would have recognized the problem soon enough to be in position to do something about it.

This example shows that LCOP, when synchronized with the operating functions, can help the commander gain and maintain the proper balance between time, space and force. It also shows that LCOP can not completely eliminate the fog and friction of war and that LCOP does not generate combat power where none exists. This point really goes to the heart of any new technology or concept and it also applies to the U.S. military transformation efforts. It is not enough to have information superiority or to be networked; but rather, the commander must be able to act with decisive force, which can only be achieved through the proper balance of time, space and force.

## **6. Conclusion: Looking Ahead**

### **LCOP will become even more essential under Transformation.**

The Department of Defense Office of Force Transformation (OFT) has a number of ongoing transformation efforts that could have a dramatic effect on how future conflicts are fought. These efforts will further complicate the battlefield to the point that logistics might pose the greatest challenge to transformation. For example, OFT's central transformation concept is Network Centric Warfare (NCW), which envisions non-contiguous Joint forces that fight independently and support one another by seamlessly sharing information and by "self-synchronizing" via a common network to deliver combat power on demand. This concept facilitates the delivery of combat power, but it further complicates logistics support and increases the need for LCOP.

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specifically to make certain points, which also appear in the real operation.

No matter what doctrine/concept is being employed, the logistician must continue to help the commander balance time, space and force. Under NCW, the battlespace will be larger and non-contiguous, and smaller lighter forces will move, fire, maneuver, communicate and decide faster than they ever have before. Larger non-contiguous battlespace will result in longer and more complex operational and strategic lines of communication (LOC) and a greater concern for security. A smaller lighter faster force will mean that combat units will carry less organic supplies and will have a limited stockpile capability, so resupply will be required more often, almost to the point of being an uninterrupted flow. Furthermore, NCW strives to leverage information technology to significantly speed up the commander's decision cycle. This ultimately will mean less time for logistician to help the commander synchronize the operational functions, less time to assess the impacts of time, space, and force on ongoing and future operations, and most importantly, less time to physically deliver logistics support to ongoing and future operations.

Realizing that these challenges could not be met with the current military logistics capability, OFT initiated the Sense and Respond Logistics Concept (SRLC) study. SRLC envisions having sensors on equipment that automatically sense a requirement and notify the appropriate "agent(s)" who automatically forward the requirement to appropriate decision maker(s), who then decide how and when to respond. If successfully implemented, SRLC will give the logisticians near real-time total visibility over requirements; however, the challenge for the logistician is not only asset visibility, but rather, helping the commander balance time, space and force so that he is in a position to act decisively. For example, as ground forces marched to Baghdad during OIF, every logistician in theater knew (without the aid of sensors) that the lead elements needed food, water, ammo and fuel to continue the

attack, but none were in a position to do anything about it. It will be of little use for the operational level commander to get automated messages telling him that his units need supplies, when he has no time to respond because he is too far away and the enemy is blocking the LOC. If successful, SRLC will provide value on the battlefield, but it will not alleviate the need for the operational level logisticians to help the commander balance time, space and force via LCOP. In fact, it will increase the need for LCOP to sort out SRLC data.

Another fundamental transformation concept is effects based operations (EBO), which strives to achieve the desired effects through network centric operations without having to necessarily destroy the enemy. The U.S. Air Force heavily favors this concept, but in fact, all of the services practice EBO. EBO complicates life for the logistician because it does not provide a clear vision of how the next war will be fought. The vision of the next war is essential to logistics planning between wars because it provides the basis for doctrine, which drives logistics planning assumptions and support strategies.

EBO provides political leaders with maximum flexibility by offering them a wide range of options for achieving the desired effects, but more options mean that logistics planning become more diffused and complicated, especially for ground forces. Whether a B-2 is dropping a bomb in Afghanistan or Iraqi, the Air Force logistics and targeting processes remain basically the same. Likewise, the Navy's carrier battle groups operate with similar autonomy. However, the Army and the Marines are significantly affected by time, space, force issues related to the nuances of different EBO options. For example, the desired effect in OIF was regime change, which could have been achieved through a decapitation attack on Saddam and Bath leadership, or as it were, through the destruction of the Iraqi Republican Guard and the occupation of Iraq. In both cases, the Air Force and Navy logistics and

targeting processes remain basically be the same; however, for the Army and Marines these two options required drastically different logistics support plans. Flexible planning to support EBO significantly increases the requirement for LCOP during all phases of conflict.

In order to address this challenge, the Marines have standardized modular capability based force packages called Marine Expeditionary Forces (MEF) and the Army is in the process of doing something similar with its “Unit of Employment” and “Unit of Action” concept.<sup>34</sup> However, modular force packages only address the force factor and makes assumptions about space and time, which may or may not be valid. For example, during OIF I MEF traveled much farther inland and operated much longer than their planning assumptions allowed for and this immediately led to logistics challenges that had to be overcome.<sup>35</sup> Modular force packages provide a template that planners can quickly modify and tailor almost on the fly, but to do this, commanders must have logistics situational awareness (LCOP) to help them quickly assess the impacts on time, space and force.

## **RECOMMENDATIONS**

For transformation to be successful the US Military must get the logistics function right the first time and getting it right means building a proper LCOP. The logistics process starts well before war is initiated and continues after the last shot is fired; therefore, building a LCOP must follow this same paradigm. LCOP must be a continuum that is embedded in doctrine, organization, training, leadership, material, personnel and facilities (DOTLMPF) and evolves from one conflict to the next.

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<sup>34</sup> U.S. Army, Transformation Roadmap, 1-8 – 1-12.

<sup>35</sup> 1<sup>st</sup> Marine Division. “Lessons Learned from Operation Iraqi Freedom.” 29 May 2003. Center for Army Lessons Learned (CALL) Operation Iraqi Freedom Lessons Learned. <https://call2.army.mil/oif/index.asp>. [12 April 2004], 23-25.

- **Recommendation #1:** Joint and Service **doctrine** should be modified to provide guidance for the development and maintenance of LCOP during peacetime and in war.

Doctrine provides the common basis for implementing and interpreting the LCOP.

- **Recommendation #2:** DoD and Service logistics **organizations** should be modified to facilitate the development and maintenance of LCOP during peacetime and in war. The modified Organizational structure should alleviate stovepipes and institutionalize LCOP.

- **Recommendation #3:** Joint and Component operational level **training** must better integrate the logistics function. Training is the greatest challenge to developing and maintaining a relevant LCOP. During training, commanders personalize their LCOP and they are exposed to logistics capabilities and limitations; therefore, it is imperative that more emphasis be placed upon integrating operational logistics into Joint training.

- **Recommendation #4: Leadership** development must refocus on operational art so that leaders at all levels understand how to leverage LCOP to balance time, space and force.

- **Recommendation #5:** LCOP related **material** solutions should focus on enhancing the commander's ability to synchronize the operating functions and balance time, space and force. Furthermore, requirements should be written in manner that keeps the material developer focused on enhancing operational art, not merely new technical capabilities.

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